



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

35467

[Docket No. HM-57; Amdts. 172-22,
173-77, 178-30]

**Classification and Packaging of Corrosive
Materials**

The purpose of these amendments to the Hazardous Materials Regulations is to amend §§ 172.5, 173.28, 173.119, 173.244, and 173.245 and to add § 173.-249a to identify specifically a number of corrosive materials that would have been shipped as "corrosive liquids, n.o.s." or "corrosive solids, n.o.s." pursuant to the amendment dated March 23, 1972 (37 FR 5946), and to authorize the use of certain packagings for which the Hazardous Materials Regulations Board ("the Board") has received numerous letters citing satisfactory experience.

On September 11, 1973, the Board published a notice of proposed rule making, Docket No. HM-57, Notice 73-6 (38 FR 24915), which proposed these amendments. Interested persons were invited to give their views and many comments were received by the Board.

1. *Editorial.* Several commenters suggested modifications to the list of hazardous materials (§ 172.5), including provisions for use of alternate designations for certain products, all oriented to increasing the utility of the list and improving its quality. The Board appreciates the show of concern and has incorporated most of the recommendations.

2. *List of hazardous materials.* Several commenters presented data indicating that certain materials should not be entered in the list as corrosive materials. On the basis of this data, the following entries have been deleted: Aluminum chloride anhydrous, solid; Aluminum chloride solution; Aminoethylethanolamine; Ammonium hydrogen fluoride, solid; Dichloropropene-dichloropropane mixture; Ferric chloride, solid; Ferric chloride solution; Methyl chloroform;

Nonyl phenol; Phenolsulfonic acid, liquid; Sodium hydrogen sulfate, solid; Sodium hydrogen sulfite, solid; Tetraethylenepentamine; and 1,1,2-trichloroethane. The Board has concluded that the data it has on these materials is either positively determinative that the materials are not corrosive or that, in some cases, the available data was not sufficiently conclusive to include the materials in the list.

3. *Reconditioned drums.* A commenter objected to the proposed restriction relating to re-use of containers in § 173.28 to corrosive materials containing caustic compounds because he believed that such solutions of over 15 percent concentration would not be permitted to be shipped in reconditioned drums. This commenter pointed out that a special permit (No. 6683) had been issued to authorize the shipment of caustic soda, liquid, alkaline caustic liquids, n.o.s., and alkaline corrosive liquids without regard to the 15 percent caustic limitation in § 173.249a. The Board has reviewed the permit and finds that the amendment to § 173.28, as proposed, encompasses all materials covered by Special Permit No. 6683 and that this permit did not go beyond the scope of §§ 173.249 and 173.249a. It should be noted that caustic and alkaline materials subject to the packaging in § 173.249 are not subject to the 15 percent limitation of § 173.249a. The basis for the restriction in § 173.249a is due to the nature of the packaging authorized by that section. Because of the provisions of § 173.28, reconditioned drums are authorized for any strength of liquid caustic soda, alkaline caustic liquids, n.o.s., and alkaline corrosive liquids, n.o.s., that are subject to the packaging provisions of § 173.249.

4. *Flammable liquids which are also corrosive.* In Notice No. 73-6, the Board proposed to authorize DOT specification 6D or 37M cylindrical steel overpacks with an inside DOT specification 2S or 2SL polyethylene container. One commenter requested that the DOT specification 2U inside polyethylene container be authorized as well. The commenter argued that existing regulations authorize the use of inside polyethylene containers that are less substantial than the DOT 2U in shipping containers less substantial than the DOT 6D or 37M, thus supporting his case for authorizing the DOT 2U in a DOT 6D or 37M overpack. A review of these regulations indicates that the commenter's statement is correct provided the comparison is limited to not more than 5-gallon capacity containers. Therefore, the Board agrees with the commenter's position if the specification DOT 2U packaging is limited to a maximum capacity of 5 gallons. Consequently it is providing for this shipping container by adding a new paragraph § 173.119 (m) (17).

5. *Exemptions.* Several comments were received generally supporting the expansion of the existing exemption from specification packaging up to metal and plastic packagings of not over 32-ounce capacity, proposed in Notice No. 73-6 in § 173.244. However, the Bureau of Explosives objected to any expansion in the size of packaging for exemptions and stated that any "increase in the small package exemption * * * should only be made after convincing proof on an individual commodity basis." The Bureau further stated that "some transportation experience should be gained through special permits." Although the Board disagrees with the Bureau's reasoning as being an impractical approach in all

cases, it does believe that the matter of increasing exempt quantities for corrosives should be studied further in the light of the materials that are presently permitted to be exempt from specification packaging. Therefore, to assure an adequate level of safety in the shipment of corrosive materials, the Board is withdrawing the proposed change in § 173.244 as regards the 32-ounce exemption provision for further study.

However, exemptions from specification packaging are provided for 16-ounce glass, metal, and plastic packaging. The special requirement for overpacking of a glass bottle in a metal can remains unchanged.

6. *"Low hazard" corrosive liquids.* Several comments were received supporting the provision to allow low hazard corrosives to be shipped in non-specification packaging. However, one commenter, the Bureau of Explosives, objected strongly to the proposal stating: "If the commodities proposed for the new § 173.249a are of such a slight hazard that they can be shipped in non-specification packaging they should not be regulated at all." The Board finds that the present regulations contain many requirements for materials described according to their end use. Almost always these materials are permitted in packaging less restrictive (including non-specification packaging) than permitted for other materials not identified by end use. Also, the Hazardous Materials Regulations require these materials to be identified on shipping papers and, often, by labeling and marking. Therefore, the contention that when materials "can be shipped in non-specification packaging then they should not be regulated at all" is not reflected by the existing regulations. In several instances, the regulations provide for some form of identification without applying the full scope of all the regulations. That is what the Board is doing in this instance. Further, the Board does not deny that there can be excesses practiced under such a system and has proposals under development that will attempt to control some shipping practices which appear to be designed to thwart the intent of particular safety requirements. Nevertheless, the record has shown that, to be reasonable, and not unduly burdensome, end use descriptions can be used in the interests of safety. The Board agrees that it would prefer a better system and is attempting to reach such a goal. Meanwhile, the available record does not support that § 173.249a would result in unsafe practices. It is important to note that the descriptions set forth in § 173.249a will permit the Board to monitor the adequacy of the packagings authorized in this section through its hazardous materials incident reporting system.

The Board agrees with several commenters that the description "liquid acid chloride compound" is too vague as proposed and should further be defined if it is to be included in the regulations. Therefore, it has deleted this entry from §§ 172.5 and 173.249a. Further, it agrees with a commenter that the nature of the products covered by § 173.249a could nevertheless pose more serious problems

aboard aircraft and has added a restriction against use of non-specification packaging for transportation of these materials by aircraft.

7. *Withdrawal of HM-57.* The Bureau of Explosives requested that the Board withdraw HM-57. They stated that this action was justified by the problems discussed in items 5 and 6 above and for the following reason:

The rail transportation industry is concerned about the manner in which this docket is being handled. Not only has HMRB found it necessary to publish six different effective dates, but parts of the original proposed rules have been placed into effect in a piecemeal, optionally observable fashion with the result that, for instance, a car of phosphoric acid may or may not be subject to placarding, train placement and switching requirements depending on the election of the shipper to follow or not to follow the newly promulgated regulations. The confusion and potential for transportation errors and delays which result from such inconsistencies are so easily imaginable that the point need not be further discussed.

The Board rejects this request for withdrawal because it does not consider the matters discussed in items 5 and 6 stemming from a Notice of Proposed Rule Making to justify such a radical action. Further with respect to the final point, i.e., delays of effective date and optional compliance with the regulations, the Board again believes there is no justification for withdrawal. The rule was published effective March 23, 1972. Approximately 20 months have been provided for compliance. The options open to the Board following publication of any rule are: (1) To adjust the regulations by further rule making, (2) to withdraw the rule or portions thereof, (3) to delay the effective date of the rule or (4) to maintain the effective date of the rule and entertain petitions for special permits during necessary periods of adjustment.

With regard to the first option, the Board has made changes since March 26, 1972 (the original publication date of the amendments in this docket) which were primarily based on justifications submitted by the petitioners. This amendment is the latest in a series of such adjustments.

Concerning the second option, the Board does not agree that the "optional compliance period" is a justifiable reason for withdrawal of the Amendment made under Docket HM-57. The Board knows of no means it could use to avoid the optional period. It is a practical impossibility for instance, that as of a given moment, all the labels, markings, placards, or whatever be changed. In any complex rule making action, there is necessarily a long period in which adjustments have to be made and optional compliance must be permitted.

In respect to the third option, the Board has not been presented with any reasons nor is it aware of any circumstances that would justifiably support further delay of the effective date of amendments published under this docket except those matters pertaining to materials corrosive only to aluminum.

Concerning the fourth option, past history, covering many years, indicates the Bureau formerly used the special permit

approach in petitioning the Interstate Commerce Commission for developing further proposals for a rule change. The Board does not agree that this is a preferred approach.

Accordingly, the petition of the Bureau of Explosives seeking withdrawal of the amendments adopted under this docket is hereby denied.

It was also brought to the Board's attention that it had inadvertently omitted the term "companion flange" in § 178.343-5(b) (2) (1). This oversight has been rectified.

In consideration of the foregoing, 49 CFR Parts 172, 173, and 178 are amended as follows:

1. PART 172—LIST OF HAZARDOUS MATERIALS CONTAINING THE SHIPPING NAME OR DESCRIPTION OF ALL MATERIALS SUBJECT TO PARTS 170-189 OF THIS SUBCHAPTER

In § 172.5(a), the List of Hazardous Materials is amended as follows:

§ 172.5 List of hazardous materials.

(a) * * *

Article	Classed as—	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in container by rail express
<i>(add)</i>				
*Acetic acid (<i>aqueous solution</i>)	Cor	173.244, 173.245	Corrosive	10 gallons.
Acetic acid, glacial	Cor	173.244, 173.245	Do	Do.
Acetic anhydride	Cor	173.244, 173.247	Do	1 gallon.
Acetyl bromide	Cor	173.244, 173.247	Do	Do.
Acetyl iodide	Cor	173.244, 173.247	Do	Do.
Acid butyl phosphate. <i>See n-butyl acid phosphate.</i>				
Acrylic acid	Cor	173.244, 173.245	Do	5 pints.
*Alkane sulfonic acid	Cor	173.244, 173.245	Do	1 gallon.
Aluminum bromide, anhydrous, solid	Cor	173.244, 173.245b	Do	100 pounds.
*Aluminum phosphate solution, 2-(2-Aminothioxy) ethanol	Cor	173.244, 173.245	Do	10 gallons.
n-Aminoethylpiperazine	Cor	173.244, 173.245	Do	Do.
n-Aminopropylcarbamate	Cor	173.244, 173.245	Do	Do.
n-Aminopropylmorpholine	Cor	173.244, 173.245	Do	Do.
1,4-(Aminopropyl) piperazine	Cor	173.244, 173.245	Do	Do.
Ammonium bifluoride solution. <i>See ammonium hydrogen fluoride solution.</i>				
*Ammonium hydrogen fluoride solution	Cor	173.244, 173.245	Do	5 gallons.
Amyl acid phosphate	Cor	173.244, 173.245	Do	10 gallons.
Antimony chloride. <i>See Antimony trichloride.</i>				
*Antimony trichloride, solid	Cor	173.244, 173.245b	Do	100 pounds.
Boron trifluoride-acetic acid complex	Cor	173.244, 173.247	Do	1 gallon.
Bromoacetic acid, solid	Cor	173.244, 173.245b	Do	100 pounds.
*Bromoacetic acid solution	Cor	173.244, 173.245	Do	1 quart.
n-Butyl acid phosphate	Cor	173.244, 173.245	Do	5 gallons.
Butyl phosphate	Cor	173.244, 173.245	Corrosive	10 gallons.
Butyric acid	Cor	173.244, 173.245	Do	10 gallons.
*Calcium bisulfite solution. <i>See Calcium hydrogen sulfite solution.</i>				
*Calcium hydrogen sulfite solution	Cor	173.244, 173.245	Do	5 gallons.
Causic potash, dry, solid, flake, bead or granular. <i>See potassium hydroxide dry, etc.</i>	Cor	173.244, 173.245b	Do	100 pounds.
*Chloroacetic acid, solid	Cor	173.244, 173.245b	Do	100 pounds.
*Chloroacetic acid, liquid	Cor	173.244, 173.245b	Do	100 pounds.
Chlorophenyl trichlorosilane	Cor	No exemption, 173.280	Do	10 gallons.
Chromic fluoride, solid	Cor	173.244, 173.245b	Do	100 pounds.
Chromium fluoride solution	Cor	173.244, 173.245	Do	1 gallon.
Chromium oxychloride. <i>See Chromyl chloride.</i>				
*Coal tar dye, liquid <i>see otherwise specifically named in § 172.5.</i>	Cor	173.244, 173.245a	Do	10 gallons.

Article	Classed as—	Exemptions and packing (see sec.)	Label required if not exempt	Maximum quantity in container by rail express
*Compounds cleaning liquid (<i>containing phosphoric acid, acetic acid, sodium or potassium hydroxide</i>)	Cor	173.244, 173.245a	Do	Do.
Crotonic acid	Cor	173.244, 173.245	Do	Do.
Dichloroacetic acid	Cor	173.244, 173.245	Do	1 quart.
Dichloroacetyl chloride	Cor	173.244, 173.247	Do	1 gallon.
Dichloroisopropyl ether	Cor	173.244, 173.245	Do	10 gallons.
Dichlorophenyl trichlorosilane	Cor	No exemption, 173.280	Do	Do.
Dichloropropene and propylene dichloride mixture	Cor	173.244, 173.245	Do	Do.
Di(2-ethylhexyl) phosphoric acid	Cor	173.244, 173.245	Do	Do.
Disopropylmethanolamine	Cor	173.244, 173.245b	Do	100 pounds.
Diphenylmethylenephosphonic acid	Cor	173.244, 173.247	Do	100 pounds.
*Dye intermediates, liquid	Cor	173.244, 173.245a	Do	10 gallons.
Fluoboric acid	Cor	173.244, 173.245a	Do	1 gallon.
Fluoroboric acid. <i>See Hydrofluoric acid.</i>				
Fluorophosphoric acid, anhydrous. <i>See Monofluorophosphoric acid.</i>				
Fluorosilicic acid. <i>See Hydrofluosilicic acid.</i>				
Fumaryl chloride	Cor	173.244, 173.245	Do	1 quart.
Hexamethylene diamine, solid	Cor	173.244, 173.245b	Do	100 pounds.
Hexamethylene imine	Cor	173.244, 173.245	Do	10 gallons.
Hexanoic acid	Cor	173.244, 173.245	Do	Do.
Hydrofluoroboric acid. <i>See Fluoboric acid.</i>				
Hydrogen fluoride. <i>See Hydrofluoric acid.</i>				
Hydrogen iodide solution. <i>See Hydroiodic acid.</i>				
Hydroiodic acid. <i>See Sulfuric acid.</i>				
Hydroquinone acid. <i>See Hydroquinone.</i>				
Iminodisopropylamine	Cor	173.244, 173.245	Do	Do.
Isobutyl peroxide	Cor	No exemption, 173.280	Do	100 pounds.
Isobutyric acid	Cor	173.244, 173.245	Do	10 gallons.
Isobutyric anhydride	Cor	173.244, 173.245	Do	Do.
Isopentanoic acid	Cor	173.244, 173.245	Do	Do.
Isopropyl acid phosphine, solid	Cor	173.244, 173.245b	Do	100 pounds.
Isopropyl phosphoric acid, solid. <i>See isopropyl acid phosphine, solid.</i>				
Lead sulfate, solid, containing more than 5% free acid	Cor	173.244, 173.245b	Do	Do.
Mating acid. <i>See Sulfuric acid.</i>				
Methyl chloroacetate. <i>See Methyl chloroformate.</i>				
Methyldichloroacetate	Cor	173.244, 173.245	Do	1 quart.
Methyldichloropyridine	Cor	173.244, 173.245	Do	10 gallons.
Methyl isobutylene dicarboxylic anhydride. <i>See Methylisobutylene dicarboxylic anhydride.</i>				
Methyl sulfate. <i>See Dimethyl sulfate.</i>				
*Mining reagent, liquid (<i>containing 20% or more acetic acid</i>)	Cor	173.244, 173.245a	Do	Do.
Monochloroamine	Cor	173.244, 173.245	Do	Do.
*Monochloroamine solution	Cor	173.244, 173.245	Do	Do.
Nitromethane acid. <i>See Nitrohydrochloric acid.</i>				
Norbornene acid. <i>See Sulfuric acid.</i>				
Phosphoric acid triethylamineide. <i>See Tri-(1-ethylindyl) phosphine oxide.</i>				
Phosphorus bromide. <i>See Phosphorus tribromide.</i>				
Phosphorus chloride. <i>See Phosphorus trichloride.</i>				
Phosphoryl chloride. <i>See Phosphorus oxychloride.</i>				
Pivaloyl chloride. <i>See Trimethyl acetyl chloride.</i>				